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**UPDATE ON POCKET GOPHER RESEARCH
AT WASHINGTON STATE UNIVERSITY**

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Physical barriers (tubes of plastic or paper materials) have the potential to protect seedlings from gophers. Pen trials at the Pullman Field Station revealed that all barriers tested provided significant protection over unprotected, control seedlings, although it was clear that the gophers could gnaw through the barriers. Cardboard barriers were not durable under moist conditions, thus only plastic and sand paper tubes were applied in field tests at the Mt. Hood and Rogue River NF in Oregon. Both of these barrier types provided significant levels of protection against gophers over unprotected seedlings in field tests. The sand paper tubes, however, dried and constricted after becoming moist; this resulted in high levels of seedling mortality.

A graduate student is evaluating the potential of sheep grazing to reduce pocket gopher populations in forestland in south central Washington. Sheep are used to reduce vegetation that would compete with seedling growth on reforestation units. Gopher densities were high (about 9-10 per acre) where no sheep grazing occurred or where only cattle graze. Densities were considerably lower (about 3 per acre) where intensive sheep grazing occurred. It appears that the sheep remove too much potential gopher food and also trample burrows. Root biomass was about 50% lower where intensive sheep grazing occurred than where cattle only grazing occurred. Forbs, a preferred gopher food, occurred 10-20% more frequently in the gopher diet where there was no sheep grazing. The diet of sheep was much more generalized than the predominantly forb-oriented diet of gophers.

A second graduate student is investigating food preferences of gophers related to plant moisture and nutrient levels. Gophers indicated relative preferences from low to high when presented with six species of forbs, grasses, or woody plants. They preferred lupine (forb), smooth brome and common witchgrass (grasses), and serviceberry (woody plant) among the choices presented. Gophers appear to prefer forbs species with higher moisture content, however, the opposite pattern occurred with woody species. No clear pattern emerged with the six grass species. Nutrient analyses on the plant species are just beginning.

Pen trials with potential repellents to reduce gopher damage to seedlings are being conducted at WSU. A wide array of commercially available repellents, unregistered compounds, and unpalatable plants have been tested on apple chunks in 2-choice feeding trials. Only predator odors (coyote and bobcat urine) has demonstrated a high level of repellency in these 24 hr tests. Field tests are underway to test the ability of commercially available (in Canada) predator odors to slow reinvasion of reforestation units by gophers. Other tests will assess the ability of various repellents to reduce winter browsing of seedlings